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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,866	12/14/2000	James C. Hoelzer	00-I-102	9357

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EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/735,866

Applicant(s)

HOELZER, JAMES C.

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in Fig. 2, "28" (on the left side, near 14 and 20) should be changed to --26--. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities:

In claim 1, line 5 "a" should be changed to --an--.

Appropriate correction is required.

### ***Specification***

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, it is unclear as to what structural limitation applicant is intended to further recite.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Atmur et al (5,879,640).

With respect to claim 1, Atmur et al discloses a catalyst assembly comprising:  
a longitudinally extending container 10' having an inlet 18 and outlet 20 at opposite ends thereof;

said container having an enlarged diameter central section and a tapered section interposed between the central section and at least one of the inlet and outlet;

a catalyst substrate 22 mounted in the central section and having two opposite end faces;  
at least one of said two opposite faces being contoured to extend axially into a respective interior defined by said tapered section.

With respect to claim 2, note two end faces of Atmur et al in Fig. 3.

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Since claim 5 is not structurally further limiting, the apparatus of Atmur et al with the specific substrate set forth above meets the instant claim.

Instant claims 1-2, and 5 structurally read on the apparatus of Atmur et al.

9. Claims 1, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Fu et al (EP 818,613) or DE 2,428,964.

With respect to claim 1, Fu et al discloses a catalyst assembly comprising:

a longitudinally extending container 14 having an inlet and outlet at opposite ends thereof;

said container having an enlarged diameter central section and a tapered section 20 interposed between the central section and at least one of the inlet and outlet;

a catalyst substrate 14 mounted in the central section and having two opposite end faces 18, 19;

at least one of said two opposite faces being contoured to extend axially into a respective interior defined by said tapered section 20.

Since claim 5 is not structurally further limiting, the apparatus of Fu et al with the specific substrate set forth above meets the instant claim.

Similar, DE 2,428,964 discloses a catalyst assembly comprising:

a longitudinally extending container 2 having an inlet and outlet at opposite ends thereof;

said container having an enlarged diameter central section and a tapered section 20 interposed between the central section and at least one of the inlet and outlet;

a catalyst substrate 3 mounted in the central section and having two opposite end faces 4;

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at least one of said two opposite faces being contoured to extend axially into a respective interior defined by said tapered section.

Since claim 5 is not structurally further limiting, the apparatus of DE 2,428,964 with the specific substrate set forth above meets the instant claim.

Instant claims 1, and 5 structurally read on the apparatus of Fu et al or DE 2,428,964.

10. Claims 1-3, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 2,201,881.

With respect to claim 1, DE 2,201,881 discloses a catalyst assembly comprising:  
a longitudinally extending container 2 having an inlet and outlet at opposite ends thereof;

said container having an enlarged diameter central section and a tapered section interposed between the central section and at least one of the inlet and outlet;

a catalyst substrate 3 mounted in the central section and having two opposite end faces 8  
at least one of said two opposite faces being contoured to extend axially into a respective interior defined by said tapered section.

With respect to claim 2, DE 2,201,881 discloses that both inlet and outlet faces may be contoured (abstract).

With respect to claim 3, DE 2,201,881 discloses that the respective tapered section and the opposite ends of said catalyst substrate may form two axially oppositely disposed gaps that are tapered toward an outer radial periphery of the substrate (abstract, Fig. 1).

Since claim 5 is not structurally further limiting, the apparatus of DE 2,201,881 with the specific substrate set forth above meets the instant claim.

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Instant claims 1-3, and 5 structurally read on the apparatus of DE 2,201,881.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. The art area applicable to the instant invention is that of catalytic converter.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re*

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*Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

14. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fu et al (EP 818,613) or DE 2,428,964 in view of GB 1,455,351 and Gary (3,189,418).

With respect to claim 2, GB 1,455,351 and Gary disclose that both inlet and outlet face may be contoured to provide the same uniform flow.

It would have been obvious to one having ordinary skill in the art to contour both inlet and outlet faces as taught by GB 1,455,351 and Gary in the apparatus of Fu et al or DE 2,428,964 to provide a more uniform flow and gas residence time across the cross section of the substrate, and since such is conventional in the art and no cause for patentability here.

With respect to claim 3, Fu et al or DE 2,428,964 further discloses that the respective tapered section and the end of said catalyst substrate form gap that is tapered toward an outer radial periphery of the substrate.

With respect to claim 4, Fu et al or DE 2,428,964 further discloses the end face may have a frustoconical section and a radially central flat section (Figs. 6, 9B in Fu et al and Fig. 1 in DE 2,428,964).

Note that the shape of the container is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape for the container, such as the circular outer contour taught by GB 1,455,351, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47.



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15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 2,201,881 in view of GB 1,455,351.

With respect to claim 4, DE 2,201,991 further discloses the end face may have a frustoconical section and a radially central flat section (Fig. 1).

Note that the shape of the container is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape for the container, such as the circular outer contour taught by GB 1,455,351, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

16. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atmur et al (5,879,640) in view of GB 1,455,351 and Gary (3,189,418) and Fu et al (EP 818,613).

With respect to claim 3, the apparatus of Atmur et al is substantially the same as that of the instant claims, but fails to disclose whether the respective tapered section and the opposite ends of said catalyst substrate may form two axially oppositely disposed gaps that are tapered toward an outer radial periphery of the substrate.

However, Fu et al, GB 1,455,351 and Gary disclose the conventionality of contouring the end faces of the catalyst substrate to form gaps that are tapered toward an outer radial periphery of the substrate.

It would have been obvious to one having ordinary skill in the art to contour the end faces of the substrate as taught by Fu et al, GB 1,455,351 or Gary in the apparatus of Atmur et al so as the catalyst would reach the light off temperature faster than in the conventional flat inlet face.

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With respect to claim 4, note that the shape of the end face or of the container is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape for the end face of the catalyst substrate or for the container, such as the frustoconical shaped end face taught by Fu et al and the circular outer contour taught by GB 1,455,351, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Foster is cited for showing state of the art.

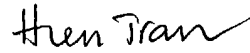
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Hien Tran**  
**Primary Examiner**  
**Art Unit 1764**

HT  
February 23, 2004.